141 prominent, the buttocks medium to small, the calves well developed, the heels a little more projecting than expected, the foot arch about
[142] medium. This is a picture of an average man who has led an active out-of-door life in a hard but healthy environment, on a minimum of food which is nevertheless well balanced; he is muscular, lean, and accustomed to walking long distances over rough terrain. From the neck down it would be hard to distinguish him from a shepherd in the Scottish Highlands, a Norwegian from the fjord country, or an Appalachian mountaineer.

[147] Only one physiological test was made: dynamometer squeeze. Despite the cold weather, despite the stiffening of fingers through years of ploughing, the mountaineers produced a mean of 112 pounds, ranging from 45 to 190 (see table 9).

II. The Face

141 From the neck up the resemblance to Scot
144 and Norwegian would continue in most respects, but would disappear in others. In the more noticeable dimensions of the face it would be quite close. The Albanian mountaineers have moderately long faces, both in the distance from nasion to alveon (the point on the gums between the 2 upper median incisors) and from nasion to menton. It is hard to make close comparisons because individual anthropometrists vary greatly in locating these points. Comparing them with series of which one can be moderately sure that the same techniques were used, we see that the Ghegs are about the same in face length as populations which are predominantly Nordic or which represent the larger varieties of Mediterranean —like the English, the Riffians, and the Basques, and shorter faced than populations with an excess of marginal pre-Neolithic genetic elements, like the Irish and Norwegians. They are longer-faced than the small Mediterranean peoples like Spaniards and southern Italians. The upper face is relatively long in proportion to the total face height; this is usually, in Euro-

141 *128

In the observations of the body and of the brain case, however, they differ more than chance and technical error would justify. In these easily influenced characters, regional phenotypes exist.

REGIONAL VARIATIONS IN BODY SIZE AND FORM

The main difference in body size lies in the north-south cleavage between the tribes living on either side of the Drin. Those to the north are a good 6 centimeters taller than those to the south. These differences are greater to the west than to the east, so that 3 areas may be postulated; a tall northwestern, an intermediate eastern, and a short southwestern. These areas differ also in body proportions, in that the northwestern tribes (Malsia e Madhe and Dukagin) are broad-shouldered and long-armed as well, while the eastern tribes, including Malsia e Jakovës, while tall, are slenderer and narrower in the shoulders, with the southwesterners in these criteria short and slender. The acme of robusticity is reached in Dukagin, whose athletic tribesmen exceed all others to a marked degree in these special criteria. Although we lack constants for weight, which would be most valuable here, we have the evidence for dynamometer squeeze, which reveals their superiority in muscular strength (see table 9).

142 *128

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Dukagin men are a little stronger than those of Malsia e Madhe, but this difference is not significant. However, both Dukagin and Malsia e Madhe are significantly stronger than all of the other tribes. Among the others, Has, Luma, and Puka are all 3 stronger than Mati and Mirdita; Puka is stronger than Zadrima as well, and Malsia e Jakovës is stronger than

* [See cat. 116, p. 65c --Analyst]

147 Mirdita alone. The same 3 areas stand out
*128 again in this test: the northwest, with greatest strength concentrated in Dukagin; the eastern border tribes, including Malsia e Jakovës, Has, Luma, and Dibra; and the southwest, including Mirdita, Mati, and Zadrima, with Mirdita at the lowest point. It should be observed that the 2 Catholic tribes, Dukagin and Mirdita, supposedly descended from a group of brothers, are the least alike in stature, body proportions, and muscular strength.

TABLE 9: DYNAMOMETER SQUEEZE.

	No.	MEAN	σ
Total	1058	112.09 ± .36	15.86
MeM	105	117.95 ± 1.05	15.90
Duk	106	121.20 ± 1.20	18.40
MeJ	104	108.30 ± 1.14	17.20
Has	114	110.05 ± 1.17	18.45
Lum	109	110.25 ± 1.11	17.15
Puk	102	112.80 ± 1.24	18.60
Mir	101	102.50 ± 1.39	20.65
Zad	105	105.75 ± 1.22	18.50
Mat	104	104.65 ± 1.32	19.90
Dib	108	108.25 ± 1.51	23.30

142 In the observations of body form, Dukagin
*128 stands out as the most athletic of all the tribes, but in general a north-south division prevails. Mentioning only the significant differences, we see that Dukagin exceeds in general musculature, while the southern tribes are least well developed. The 4 southern tribes (Zadrima, Mirdita, Mati, and Dibra) exceed in percentages of short necks, while Zadrima, Mirdita, Mati, and Has exceed in thin necks. The 3 northern tribes exceed in + shoulder slope, the southern tribes in *sm*. To a certain extent chest development runs inversely to stature; Mirdita and Mati are the chestiest, and

142 *128 Malsia e Jakovës the least so. Has stands out as moderately tall and very chesty. The vertebral borders of the scapulae, supposed to have much significance from the standpoint of general health and vigor, vary little. The lumbar curve is most pronounced in the tribes north of the Drin. None of the Gheg mountaineers had enough to eat to produce protuberant abdomens—in this criterion variation is nonexistent. In general, buttocks are plumpest north of the Drin, where lumbar curve is greatest and hence pelvic tilt most pronounced; these differences between tribes in lumbar curve and buttock protrusion are more marked than any others. Calves are most developed in Dukagin and Mirdita, among the tallest and shortest tribesmen, respectively. The feet show little variability.

142 • 147 *128 To sum this data up, we find tall men north of the Drin, with stature decreasing rapidly as one moves southward; to the east, the gradient of change is much less marked than in the west. In fact, 3 stature areas may be designated: the northwest, the east, and the southwest. In these 3 areas, in general, the most robust are the big men of the northwest, while the easterners tend to a lankier form. Dukagin stands out above all the others for strength and athletic development, followed closely by the *bairaks* of Malsia e Madhe. Mirdita, followed by Mati and Zadrima, lies at the other extreme. These regional differences are as great as those between Norway and France, or England and Greece.

REGIONAL VARIATIONS IN THE CRANIAL VAULT

141 *128 The head length means vary nearly 7 millimeters, the breadth means 6 millimeters, and the height 4 millimeters, tribally. These differences are significant in 28 out of 45 cases for head length, 25 out of 45 for head breadth, and 21 out of 45 for head height. Heads are longest in the northwest, intermediate in the east, and shortest in the southwest. They are broadest in the northwest and more or less the same elsewhere; in height they exceed in Zadrima and Malsia e Madhe, and are lowest in Mati and Dibra, following in general a NW/SE axis.

These regional variations come out even more markedly in the cephalic index, in which

124 from the total mean more than 3 times the probable error. In the following statistical exercises, whenever we compare tribal samples with each other, we must remember that there is an 8-year probable span of age means, from 36 to 44 years, and that we must not consider regionally significant a difference in any criterion which varies less regionally than it varies in this 8-year age span in the series as a whole.

This question is further complicated by the fact that some tribal samples are more dispersed in age distribution than others. This can be measured by the values for the standard deviation. Dukagin has a σ of 9.25 years; Puka of 13.70 years. These are the extremes. This difference of 4.45 years=5.71 x p.e. and this is thus statistically significant. This difference in variability may also be expected to qualify the means in certain cases. In a character in which the highest values are found at, let us say, the 35–39-year-old age locus, and we have 2 samples each with a mean age of 38, then the sample with the lowest value for σ may be expected to show the higher mean. This is another reason why we must allow a little more than the conventional amount of leeway in interpreting the statistical significance of differences between tribal and other samples.

AGE AND STRENGTH

147 #128 No single criterion can be found which expresses the changing health, maturity, and vigor of a man more than his muscular strength. Table 11 shows values for hand squeeze in

TABLE 11: AGE AND STRENGTH, IN POUNDS.

AGE	#	RANGE	MEAN P.E.	σ	V
20–24...	107	60–160	112.80 ± 1.11	17.10	15.20
25–29...	154	75–170	115.00 ± .93	17.10	14.86
30–34...	164	50–180	114.60 ± 1.00	19.00	16.61
35–39...	163	70–185	115.30 ± 1.07	20.15	17.42
40–44...	125	45–170	112.10 ± 1.16	19.25	17.16
45–49...	106	50–150	103.65 ± 1.36	20.85	20.15
50–54...	88	65–140	103.90 ± 1.17	16.25	15.64
55–59...	51	50–140	103.35 ± 1.65	17.45	16.83
60–64...	58	50–130	96.05 ± 1.46	16.55	17.20
65–69...	15	50–115	91.00 ± 2.65	15.20	16.82
70–74...	14	70–130	95.70 ± 3.02	16.70	17.46
75–89...	11	75–110	90.00 ± 2.34	11.50	12.78
65–89...	40	50–130	92.40 ± 1.62	15.05	16.30

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*128 pounds for all age grades from 20–24 to 75–89 years; and also for 65–89 years pooled. Out of 78 possible comparisons, when we ignore the pooling, 44 reach 3 or more times p.e., and when we count 65 onward as pooled, the score is 31 out of 55. Eleven of these differences exceed 9.00 times p.e. Our mountaineers reach their peak of squeeze-power in their late 30's, decline slowly for half a decade, and then weaken more rapidly after 45. The combination of physiological changes which this curve reflects may be traced in the metrical and morphological characters which follow.

AGE AND SELECTED METRICAL CHARACTERS

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*128 Table 12 presents the means for 7 selected metrical characters. Having neither time nor space to compute and present age grade means in all criteria, I selected some which have a special bearing on the problems of this study as well as general interest. The 12 youths probably born after 1910 are not numerous enough for full statistical treatment. Although they deviate from the trends shown by the

1 [see cat. 116, p. 73c -- Analyst]